

LISTING OF CLAIMS:

1 1. (Currently amended) A method of operating a torque transmitting
2 apparatus which receives torque from a rotary output element of a prime mover
3 and transmits torque to a rotary input element of an automatic transmission in a
4 power train of a vehicle, wherein the torque transmitting apparatus comprises a
5 hydrokinetic torque converter and a slip clutch is arranged in parallel to transmit
6 torque between the output and input elements in parallel with a slip clutch and
7 wherein the amount magnitude of torque being transmitted by the clutch is
8 controlled selectively variable by a computerized regulating unit, the method
9 comprising the steps of:

10 regulating the transmission the amount of torque to be transmitted by
11 the clutch as a function of the magnitude of torque being transmitted by the output
12 element of the prime mover;

13 calculating what amount of force will have to be applied to the clutch, so
14 that the clutch will transmit said predetermined amount of torque, wherein the
15 amount of torque is determined and the amount of force is calculated so that the
16 clutch operates with a desired minimum amount of slip, and

17 including ascertaining and adaptively applying to the clutch a variable
18 force for the transmission of a predetermined torque by the clutch with attendant
19 automatic selection of a minimum slip between a torque receiving and torque
20 transmitting part of the power train; and carrying out a compensation, particularly
21 long range compensation, for eventual differences between the predetermined and

22 actual torques being transmitted by the clutch for long-term departures of the
23 torque actually transmitted by the clutch from the predetermined torque.

1 2. (Currently amended) The method of claim 1, wherein the amount of
2 torque to be transmitted by the clutch as a function of the RPM of torque M_{pm} being
3 generated at the output element of the prime mover is ascertained calculated by
4 the regulating unit in accordance with the equation

5 $M_{\text{clutch}} = k_{\text{me}} \cdot k_{\text{corr}} \cdot (M_{\text{pm}} + M_{\text{corr pm}}) + M_{\text{corr wu}},$ wherein

6 M_{clutch} is the torque to be transmitted by the clutch,

7 k_{me} is a torque dividing factor which is ~~at least substantially constant within~~
8 ~~the entire operating range of the power train for apportioning respective~~
9 ~~amounts of torque being transmitted by the slip clutch and the~~
10 ~~hydrokinetic torque converter,~~

11 k_{corr} is a correction factor for correction of multiplicative errors that is
12 determined based on a current operating point of the power train,

13 $M_{\text{corr pm}}$ is a correction torque to compensate for additive errors added to the of
14 M_{pm} , and

15 $M_{\text{corr wu}}$ is a correction torque compensating for additive errors added to of the
16 clutch torque M_{clutch} ,

17 wherein said desired minimum amount of slip between torque receiving and torque
18 transmitting parts of the power train being occurs automatically selected as a
19 function of said torque dividing factor k_{me} , and long-term departures of actual from
20 theoretical values for M_{pm} and M_{clutch} are compensated by and long-range

21 compensation for any departure of actual torques from the predetermined torques
22 being carried out in dependency upon the correction factor k_{corr} and correction
23 torques $M_{corr\ pm}$ and $M_{corr\ wu}$.

1 3. (original) The method of claim 2, wherein the torque dividing factor
2 k_{me} is a function of the RPM of the rotary output element.

1 4. (original) The method of claim 2, wherein the torque dividing factor
2 k_{me} is a function exclusively of the RPM of the rotary output element.

1 5. (original) The method of claim 2, wherein the torque dividing factor
2 k_{me} is a function of the RPM and of the torque being transmitted by the rotary
3 output element.

1 6. (Currently amended) The method of claim 4 2, wherein the torque
2 dividing factor k_{me} is a function of the RPM and torque being transmitted by the
3 prime mover.

1 7. (original) The method of claim 1, wherein the magnitude of the
2 torque being transmitted by the clutch is variable by a pressure differential between
3 two bodies of a hydraulic fluid one of which is confined in a first compartment
4 between a housing of the torque converter and the clutch and the other of which is
5 confined in a second compartment between the housing and the clutch.

1 8. (original) The method of claim 1, wherein the prime mover is a
2 combustion engine and the operating condition of the power train is a function of at
3 least one of a plurality of variable parameters including (a) the RPM of the rotary
4 output element and the position of a throttle control lever of the vehicle, (b) the
5 RPM of the rotary output element and the rate of admission of fuel to the engine,
6 (c) the RPM of the rotary output element and the subatmospheric pressure in a
7 suction pipe of the engine, and (d) the RPM of the rotary output element and the
8 duration of fuel injection into the engine.

1 9. (currently amended) The method of claim 1, wherein ~~said regulating~~
2 step includes shifting from the transmission by the clutch of a first torque to the
3 transmission of a different second torque with a delay which is a function of a
4 variable parameter denoting affecting the division of torque being transmitted by
5 the ~~rotary output element of the prime mover~~ into a first torque being transmitted by
6 the torque converter and a second torque being transmitted by the clutch is
7 changed from a current value to a new value with a time delay.

1 10. (original) The method of claim 9, wherein the variable parameter is
2 a pressure differential between two bodies of fluid in the torque converter at
3 opposite sides of a pressure plate of the clutch.

1 11. (original) The method of claim 9, wherein the variable parameter is
2 variable as a function of a difference between the RPM of the rotary output element

3 and the RPM of the rotary input element.

1 12. (original) The method of claim 9, wherein the variable parameter is
2 variable as a function of a gradient of the RPM of the rotary output element.

1 13. (original) The method of claim 9, wherein the variable parameter is
2 a pressure differential between two bodies of hydraulic fluid in the torque converter
3 at opposite sides of a pressure plate of the clutch, the pressure differential being
4 variable by one of (a) a PI regulator and (b) a PID regulator.

1 14. (Currently amended) The method of claim 13, wherein the variation
2 of the pressure differential by the one regulator ~~can~~ cannot be unequivocally
3 defined by an a non-analytical technique.

1 15. (currently amended) The method of claim 1, wherein the magnitude
2 of torque being transmitted by the clutch is variable by a pressure differential
3 between two bodies of hydraulic fluid confined in a housing of the torque converter
4 at opposite sides of a pressure plate of the clutch and the pressure differential is
5 variable as a result of scanning a characteristic curve and utilizing the thus
6 obtained signals to determine differences between actual and desired pressure
7 differentials, said regulating step further comprising eliminating said differences by
8 establishing an integrating feedback loop ~~return flow of fluid from one of the~~
9 ~~compartments into the other of the compartments~~, the variation of pressure

10 differential not being unequivocally definable by an a non-analytical technique.

1 16. (original) The method of claim 15, wherein the signals are
2 generated as a result of variable flow of fluid between the two bodies of fluid
3 through an adjustable valve.

1 17. (original) The method of claim 1, wherein the magnitude of torque
2 being transmitted by the clutch is variable by a pressure differential between two
3 bodies of hydraulic fluid confined in the torque converter at opposite sides of a
4 pressure plate of the clutch and the pressure differential is variable by one of (a) a
5 PI regulator, (b) an I regulator and (c) a PID regulator.

1 18. (original) The method of claim 17, wherein signals are generated as
2 a result of variable flow of hydraulic fluid between the two bodies of fluid as a
3 function of one of (a) a duty factor and (b) a fluid flow through an adjustable valve,
4 the variation of pressure differential being unequivocally definable by a non-
5 analytical technique.

1 19. (original) The method of claim 1, wherein the step of carrying out
2 compensation includes monitoring the actual torques being transmitted by the
3 clutch and comparing the monitored actual torques with reference values.

1 20. (original) The method of claim 1, wherein the step of carrying out

2 compensation includes computing the torque being transmitted by the torque
3 converter on the basis of the characteristics of the torque converter and
4 determining the actual ratio of torques being transmitted by the torque converter
5 and the clutch.

1 21. (currently amended) The method of claim 1, wherein the amount of
2 torque to be transmitted by the clutch as a function of the RPM of torque being
3 generated at the output element of the prime mover is ascertained calculated by
4 the regulating unit in accordance with the equation

5 $M_{clutch} = k_{me} \cdot k_{corr} \cdot (M_{pm} + M_{corr\ pm}) + M_{corr\ wu}$, wherein

6 M_{clutch} is the torque to be transmitted by the clutch,

7 k_{me} is a torque dividing factor which is at least substantially constant within
8 the entire operating range of the power train for apportioning respective
9 amounts of torque being transmitted by the slip clutch and the
10 hydrokinetic torque converter,

11 k_{corr} is a correction factor for correction of multiplicative errors that is
12 determined based on a current operating point of the power train,

13 $M_{corr\ pm}$ is a correction torque to compensate for additive errors added to the of
14 M_{pm} , and

15 $M_{corr\ wu}$ is a correction torque compensating for additive errors added to of the
16 clutch torque M_{clutch} ,

17 wherein said desired minimum amount of slip between torque receiving and torque
18 transmitting parts of the power train being occurs automatically selected as a

19 function of said torque dividing factor k_{me} , and long-term departures of actual from
20 theoretical values for M_{pm} and M_{clutch} are compensated by and long-range
21 compensation for any departure of actual torques from the predetermined torques
22 being carried out in dependency upon the correction factor k_{corr} and correction
23 torques $M_{corr\ pm}$ and $M_{corr\ wu}$, the differences between the actual and predetermined
24 torque being transmitted by the clutch being attributable to at least one of (a)
25 multiplicative errors ($k_{corr} \neq 0$, $M_{corr\ pm} = 0$, $M_{corr\ wu} = 0$), (b) errors additive to prime
26 mover torque ($k_{corr} = 0$, $M_{corr\ pm} \neq 0$, $M_{corr\ wu} = 0$), (c) errors additive to the clutch
27 torque ($k_{corr} \neq 0$, $M_{corr\ pm} = 0$, $M_{corr\ wu} \neq 0$), (d) multiplicative errors and additive
28 errors to prime mover torque ($k_{corr} \neq 0$, $M_{corr\ pm} \neq 0$, $M_{corr\ wu} = 0$), (e) errors
29 multiplicative and additive to prime mover torque ($k_{corr} \neq 0$, $M_{corr\ pm} = 0$, $M_{corr\ wu} \neq 0$)
30 and (f) errors multiplicative of and additive to prime mover torque and clutch torque
31 ($k_{corr} \neq 0$, $M_{corr\ pm} \neq 0$, $M_{corr\ wu} \neq 0$), said step of carrying out compensation taking
32 place with a time constant of several seconds to thus impart to the step of carrying
33 out compensation a purely adaptive character.

1 22. (currently amended) The method of claim 1, wherein the prime
2 mover is operable at a plurality of speeds and further comprising the step of
3 utilizing signals denoting when a desired acceleration of the prime mover is
4 signaled by an operator of the vehicle to increase the slip of the clutch as a result of
5 is increased through a reduction of a factor k_{me} denoting the division of torque
6 being transmitted by the rotary output element into first and second torques
7 respectively transmitted by the torque converter and the clutch with attendant

8 establishment of additional spare torque transmittable, so that the torque boost
9 offered by the torque converter is available as an additional torque reserve.

1 23. (currently amended) The method of claim 1, wherein the
2 transmission has a plurality of drive ratios and the torque-transmitting apparatus
3 has a combined slip resulting from said regulating step includes utilizing the slip of
4 the clutch and from a less than perfect torque-transmitting efficiency of the torque
5 converter, and wherein at each of said drive ratios said combined slip is determined
6 primarily by the slip of the clutch, so that as a primary factor and the efficiency of
7 the torque converter as a secondary becomes a less important factor for the
8 transmission of torque from the rotary output element to the rotary input element to
9 thus permit the utilization of a so that the torque converter operating with can be
10 optimized for a high stall speed and having a wide torque conversion range.

24. (canceled)

1 25. (currently amended) A method of operating a torque transmitting
2 apparatus which receives torque from a rotary output element of a prime mover,
3 such as a combustion engine, and transmits torque to a rotary input element of an
4 automatic transmission in a power train of a vehicle, wherein a hydrokinetic torque
5 converter is arranged to transmit torque between the output and input elements in
6 parallel with a slip clutch and, wherein the magnitude of torque being transmitted
7 by the clutch is variable detectable by a monitoring unit in conjunction with a central

8 computer unit, and wherein the application of force to, and hence the magnitude of
9 torque being transmitted by, the clutch is selectively regulatable controllable by the
10 computer unit, comprising the steps of:

11 (a) ascertaining the magnitude of torque to be transmitted by the clutch
12 in dependency upon the operating condition of the power train in accordance with
13 the equation

14 $M_{clutch} = k_e \cdot k_{corr} \cdot M_{pm}$, wherein

15 k_e = k_{me} is denoting a torque dividing factor which is at least substantially constant
16 within the entire operating range of the power train for apportioning
17 respective amounts of torque being transmitted by the slip clutch and the
18 torque converter,

19 k_{corr} is a correction factor that is dependent on a current operating point of the
20 power train,

21 M_{clutch} is the torque being transmitted by the clutch and

22 M_{pm} is the torque being transmitted by the rotary output element of the prime
23 mover,

24 (b) ascertaining the magnitude of the force to be applied to the clutch for
25 the transmission of a predetermined torque, and

26 (c) applying the thus ascertained force to the clutch,

27 with attendant automatic selection of wherein the slip between the output and input
28 elements adjusts itself automatically as a function of the torque dividing factor k_e
29 and possible deviations of an individual power train from an ideal behavior are
30 corrected by compensation for eventual departures from the desired torque

31 transmission, as a function of the correction factor k_{corr} , due to the characteristics of
32 the selected power train.

1 26. (currently amended) A method of operating a torque transmitting
2 apparatus which receives torque from a rotary output element of a prime mover,
3 such as a combustion engine, and transmits torque to a rotary input element of an
4 automatic transmission, wherein a hydrokinetic torque converter is arranged to
5 transmit torque between the output and input elements in parallel with a slip clutch
6 and wherein the magnitude of torque being transmitted by the clutch is selectively
7 variable detectable by a monitoring device in conjunction with a central computer
8 unit, comprising the steps of:

9 (a) ascertaining the magnitude of torque to be transmitted by the clutch
10 in dependency upon the operating condition of the power train in accordance with
11 the equation

12 $M_{clutch} = k_e \cdot k_{corr} \cdot M_{pm}$, wherein

13 $k_e = k_{me}$ is denoting a torque dividing factor which is independent of a
14 characteristic field of the prime mover,

15 k_{corr} is a correction factor that is dependent on a current operating point of the
16 power train, and

17 M_{pm} is the torque being transmitted by the prime mover,

18 (b) ascertaining the magnitude of the force to be applied to the clutch for
19 the transmission of a predetermined torque, and

20 (c) applying the thus ascertained force to the clutch,

21 with attendant automatic selection of wherein the slip between the output and input
22 elements adjusts itself automatically as a function of the torque dividing factor k_e
23 and possible deviations of an individual power train from an ideal behavior are
24 corrected by compensation for eventual departures from the desired torque
25 transmission, as a function of the correction factor k_{corr} , due to the characteristics of
26 the selected power train.

1 27. (currently amended) A method of operating a torque transmitting
2 apparatus, particularly in a power train of a motor vehicle, which receives torque
3 from a rotary output element of a prime mover, such as a combustion engine, and
4 transmits torque to a rotary input element of an automatic transmission, wherein a
5 hydrokinetic torque converter is arranged to transmit torque between the output
6 and input elements in parallel with a slip clutch and wherein the magnitude of
7 torque being transmitted by the clutch is selectively variable detectable by a
8 monitoring device in conjunction with a central computer unit, comprising the steps
9 of

10 (a) ascertaining the magnitude of torque M_{clutch} to be transmitted by the
11 clutch in dependency upon the operating condition of the torque transmitting
12 apparatus in accordance with the equation

13
$$M_{clutch} = k_e \cdot k_{corr} \cdot M_{pm}, \text{ wherein } k_e = k_{me}$$

14 $k_e = k_{me}$ is denoting a torque dividing factor which is dependent only upon the
15 RPM of the output element of the prime mover,

16 k_{corr} is a correction factor that is dependent on a current operating point of the

17 power train, and
18 M_{pm} is the torque being transmitted by the prime mover,
19 (b) ascertaining the magnitude of the force to be applied to the clutch for
20 the transmission of a predetermined torque, and
21 (c) applying the thus ascertained force to the clutch,
22 with attendant automatic selection of wherein the slip between the
23 output and input elements adjusts itself automatically as a function of the torque
24 dividing factor k_e and possible deviations of an individual power train from an ideal
25 behavior are corrected by compensation for eventual departures from the desired
26 torque transmission, as a function of the correction factor k_{corr} , due to the
27 characteristics of the selected power train.

1 28. (currently amended) A method of operating a torque transmitting
2 apparatus, particularly ~~in a power train of a motor vehicle, which receives torque~~
3 from a rotary output element of a prime mover, such as a combustion engine, and
4 transmits torque to a rotary input element of an automatic transmission, wherein a
5 hydrokinetic torque converter is arranged to transmit torque between the output
6 and input elements in parallel with a slip clutch and wherein the magnitude of
7 torque being transmitted by the clutch is selectively variable detectable by a
8 monitoring device in conjunction with a central computer unit, comprising the steps
9 of
10 (a) ascertaining the magnitude of torque M_{clutch} to be transmitted by the
11 clutch in dependency upon the operating condition of the torque transmitting

12 apparatus in accordance with the equation

13 $M_{\text{clutch}} = k_e \cdot k_{\text{corr}} \cdot M_{\text{pm}}$, wherein $k_e = k_{\text{me}}$

14 $k_e = k_{\text{me}}$ is denoting a torque dividing factor which is dependent only upon the

15 RPM of the output element of the prime mover and the magnitude of

16 torque being transmitted by the output element of the prime mover,

17 k_{corr} is a correction factor that is dependent on a current operating point of the

18 power train, and

19 M_{pm} is the torque being transmitted by the prime mover,

20 (b) ascertaining the magnitude of the force to be applied to the clutch for

21 the transmission of a predetermined torque, and

22 (c) applying the thus ascertained force to the clutch,

23 ~~with attendant automatic selection of~~ wherein the slip between the

24 output and input elements adjusts itself automatically as a function of the torque

25 dividing factor k_e and possible deviations of an individual power train from an ideal

26 behavior are corrected by compensation for eventual departures from the desired

27 torque transmission, as a function of the correction factor k_{corr} , due to the

28 characteristics of the selected power train.

1 29. (currently amended) A method of operating a torque transmitting

2 apparatus which receives torque from a rotary output element of a prime mover,

3 such as a combustion engine, and transmits torque to a rotary input element of an

4 automatic transmission in a power train of a vehicle, wherein a hydrokinetic torque

5 converter is arranged to transmit torque between the output and input elements in

6 parallel with a slip clutch, and wherein the magnitude of torque being transmitted by
7 the clutch is variable by a pressure differential between two bodies of a hydraulic
8 fluid one of which is confined in a first compartment between a housing of the
9 torque converter and the slip clutch and the other of which is confined in a separate
10 second compartment between the housing and the clutch, and wherein the
11 pressure differential is variable detectable by a monitoring unit in conjunction with a
12 central computer unit and, and wherein the application of force to, and hence the
13 magnitude of torque being transmitted by, the clutch is ~~selectively regulatable~~
14 controllable by the computer unit, comprising the steps of

15 (A) determining the RPM of said output element,

16 (B) ascertaining the magnitude of torque to be transmitted by the clutch
17 in dependency upon the operating condition of the power train in accordance with
18 the equation $M_{clutch} = k_e \cdot k_{corr} \cdot M_{pm}$, wherein $k_e = k_{me}$ denoting is a torque dividing
19 factor which satisfies at least one of the requirements including (a) at least
20 substantial constancy within the entire operating range of the power train, (b)
21 independence from a characteristic field of the prime mover, (c) dependency
22 exclusively upon the RPM of the output element of the prime mover, and (d)
23 dependency upon the RPM of the prime mover and the magnitude of torque being
24 transmitted by the output element, k_{corr} is a correction factor, M_{clutch} is the torque
25 being transmitted by the clutch and M_{pm} is the torque being transmitted by the
26 rotary output element of the prime mover,

27 (C) ascertaining the magnitude of the force to be applied to the clutch for
28 the transmission of a predetermined torque, and

29 (D) applying the thus ascertained force to the clutch,
30 with attendant automatic selection of wherein the slip between the output and input
31 elements adjusts itself automatically as a function of the torque dividing factor k_e
32 and possible deviations of an individual power train from an ideal behavior are
33 corrected by compensation for eventual departures from the desired torque
34 transmission, as a function of the correction factor k_{corr} , due to the characteristics
35 of the selected power train ascertaining the magnitude of the force to be applied to
36 the clutch for the transmission of a predetermined torque, and applying the thus
37 ascertained force to the clutch with attendant automatic selection of the slip
38 between the output and input elements as a function of the torque dividing factor k_e
39 and compensation for eventual departures from the desired torque transmission, as
40 a function of the correction factor k_{corr} , due to the characteristics of the selected
41 power train.

1 30. (original) The method of claim 29, wherein the prime mover is a
2 combustion engine the operating condition of which is dependent upon the RPM of
3 the output element and the position of a throttle control lever of the vehicle.

1 31. (original) The method of claim 29, wherein the prime mover is a
2 combustion engine the operating condition of which is dependent upon the RPM of
3 the output element and the subatmospheric pressure in a suction pipe of the
4 engine.

1 32. (original) The method of claim 29, wherein the prime mover is a
2 combustion engine the operating condition of which is dependent upon the RPM of
3 the output element and the duration of fuel injection into the engine.

1 33. (currently amended) The method of claim 29, wherein in response
2 to a change of the torque being transmitted by the power train [further comprising
3 the step of selecting in the central computer unit that] a new torque [which is] to be
4 transmitted by the clutch is implemented through the following measures [in
5 response to changes of the torque being transmitted by the power train in
6 accordance with the following undertakings]: (A) advance determination of a
7 parameter X which [is indicative of] determines the torque being transmitted by the
8 clutch at an instant t_{n+1} after the elapse of a monitoring interval and [which is
9 ascertained] in accordance with a function [excluding at least one undesirable
10 phenomenon, such as] that excludes undesirable phenomena including at least a
11 blocking of the clutch, (B) determination of a gradient ΔX which is required to
12 arrive at a desired value of the parameter X after elapse of an interval Δt , (C)
13 applying the thus determined gradient ΔX with a hydraulic system including a
14 [u]proportionality] proportional regulation wherein a parameter includes a pressure
15 differential ΔP established in advance between bodies of a hydraulic fluid at
16 opposite sides of a pressure plate of the clutch in a housing of the torque converter
17 in accordance with the equation

18
$$[\Delta P_{n+1} = (1-\beta) \cdot \Delta P_{desired} + \beta \cdot P_n]$$

19 $\Delta P_{n+1} = (1-\beta) \cdot \Delta P_{desired} + \beta \cdot P_n$, wherein $\beta = f(T_v, t)$, and

20 (D) repeating the steps (A), (B) and (C) until the parameter X at least closely
21 approximates the desired parameter.

1 34. (currently amended) The method of claim 29, wherein further in
2 response to changes of the torque being transmitted by the power train comprising
3 ~~the step of selecting in the central computer unit that a new torque which is to be~~
4 ~~transmitted by the clutch is implemented through the following measures , in~~
5 ~~response to changes of the torque being transmitted by the power train, in~~
6 ~~accordance with the following undertakings:~~

7 (A) determining a gradient ΔX of a parameter X which is indicative of
8 determines the torque being transmitted by the clutch ~~and is ascertained in~~
9 ~~accordance with a function excluding at least one undesirable phenomenon such~~
10 ~~as that excludes undesirable phenomena including at least a short-lasting blocking~~
11 ~~of the clutch,~~

12 (B) applying the gradient ΔX with a hydraulic system, wherein the a
13 ~~gradient $\Delta \Delta P$ is indicative of a pressure differential ΔP between two bodies of a~~
14 ~~hydraulic fluid at opposite sides of a pressure plate of the clutch in a housing of the~~
15 ~~torque converter and is arrived at in accordance with the equation~~
16 $\Delta \Delta P = C_1 \cdot (\Delta P_{desired} - \Delta P_n)$, wherein C_1 is a proportionality factor, and

17 (C) repeating the steps (A) and (B) until the parameter X at least
18 approximates a desired value.

1 35. (currently amended) The method of claim 29, wherein when a

2 reduction of torque being transmitted by the apparatus ~~is likely to develop~~ can be
3 predicted as a result of at least one of a plurality of occurrences including shifting of
4 the transmission into a different drive ratio and attachment of at least one
5 aggregate to an output element of the transmission and ~~wherein~~ said predicted
6 reduction of torque ~~is likely to entail~~ can cause short-lasting blockage of the clutch,
7 the method further comprises comprising the steps step of reducing the magnitude
8 of torque being transmitted by the clutch ~~by~~ including ~~at least one of the following~~
9 undertakings: (A) reducing the factor k_e by a predetermined value, and thereupon
10 gradually increasing each reduced factor as a function of time to a value level
11 where the amount of the torque being transmitted by the clutch is compatible with
12 adequate ~~which ensures~~ insulation of the transmission from vibrations and
13 economical fuel consumption by the prime mover..

1 36. (currently amended) The method of claim 29, wherein when a
2 reduction of torque being transmitted by the apparatus ~~is likely to develop~~ can be
3 predicted as a result of at least one of a plurality of occurrences including shifting of
4 the transmission into a different drive ratio and attachment of at least one
5 aggregate to an output element of the transmission and ~~wherein~~ said predicted
6 reduction of torque ~~is likely to entail~~ can cause short-lasting blockage of the clutch,
7 the method further comprises comprising the steps step of reducing the magnitude
8 of torque being transmitted by the clutch including through at least one of the
9 following measures undertakings: (A) reducing the factor k_e by a predetermined
10 value, and (B) reducing the factor k_{corr} by a predetermined value and thereupon

11 increasing each reduced factor as a function of time to a value level where the
12 amount of the torque being transmitted by the clutch is compatible with adequate
13 which ensures insulation of the transmission from vibrations and economical fuel
14 consumption by the prime mover.

1 37. (currently amended) The method of claim 29, wherein the factor
2 K_{corr} is indicative of [the selected] a power train [in the] of a specific vehicle, and
3 wherein [and further comprising] the steps [of] for selecting the factor k_{corr} to
4 compensate for [eventual departures] deviations of the characteristics of [the
5 selected] said power train of the specific vehicle from desired characteristics
6 [including] include:

7 (a) monitoring [that] the slip of the clutch [which develops] in a
8 predetermined [quasi] substantially stationary range of operation of the apparatus
9 with a time delay which is sufficient to prevent the transmission of fluctuations of
10 transmitted torque,

11 (c) comparing the monitored slip with a reference value which is
12 selected to ensure optimal insulation of the transmission from vibrations and
13 economical fuel consumption by the prime mover, and

14 (d) altering the slip of the clutch when the monitored slip departs from
15 the reference value.

1 38. (currently amended) The method of claim 29, further comprising the
2 step steps of (a) detecting an impending acceleration of the prime mover based on

3 a throttle valve position, and (b) if an impending acceleration is detected, reducing
4 at least one of the factors k_e and k_{corr} in response to detected indication of intended
5 acceleration of the prime mover, such as by a change of the position of a throttle
6 control lever of the vehicle, with attendant increase of so that the slip of the clutch
7 and the establishment of additional spare torque transmittable by the torque
8 converter increases and the torque boost offered by the torque converter is
9 available as an additional torque reserve.

1 39. (currently amended) The method of claim 29, wherein the
2 transmission has a plurality of drive ratios and the torque-transmitting apparatus
3 has a combined slip resulting from said regulating step comprises utilizing the slip
4 of the clutch and from a less than perfect torque-transmitting efficiency of the
5 torque converter, and wherein at each of said drive ratios said combined slip is
6 determined primarily by the slip of the clutch, so that as a primary factor and the
7 efficiency of the torque converter as a secondary becomes a less important factor
8 for transmission of torque from the rotary output element to the rotary input element
9 to thus permit the utilization of a so that the torque converter having a can be
10 designed for a wide torque conversion range.

Claims 40 to 101 canceled

1 102. (New) The method of claim 2, wherein the torque-apportioning
2 factor k_{me} is a preselected substantially constant factor.